AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph immediately following "Cross Reference to Related Applications" with the following rewritten paragraph:

a1

-- This patent application is related to application having serial number ~~________~~ 09/681,686, titled "Yellow Light-Emitting Halophosphate Phosphors And Light Sources Incorporating the Same," filed on ~~________~~ May 21, 2001. --

Please replace Paragraph 6 with the following rewritten paragraph:

a2

-- The present invention provides phosphor blends that are excitable by electromagnetic radiation having wavelengths in the near UV-to-blue range (from about 315 nm to about 480 nm) to emit efficiently a visible light in a range of wavelengths from about 490 nm to about 770 nm. A phosphor blend of the present invention comprises a mixture of at least two phosphors selected from the group consisting of (a) $Sr_2P_2O_7:Eu^{2+},Mn^{2+}$ (hereinafter called "Sr pyrophosphate"); (b) $(Ca,Sr,Ba)_5(PO_4)_3(F,Cl,OH):Eu^{2+},Mn^{2+}$ (hereinafter called "Ca halophosphate"); (c) $3.5MgO \cdot 0.5MgF_2{:}GeO_2:Mn^{4+}$ (hereinafter called "MFG"); (d) $Sr_4Al_{14}O_{25}:Eu^{2+}$ (hereinafter called "SAE"); (e) $(Sr,Ba,Ca)_5(PO_4)_3(Cl,OH):Eu^{2+}$ (hereinafter called "SECA"); (f) an europium-activated aluminate phosphor selected from the group consisting of $(Ba,Ca,Sr)_2MgAl_{16}O_{27}:Eu^{2+}$, $(Ba,Ca,Sr)MgAl_{10}O_{17}:Eu^{2+}$, and $(Ba,Ca,Sr)Mg_3Al_{14}O_{25}:Eu^{2+}$ (hereinafter called "BAM"); and (g) an europium and manganese co-activated aluminate phosphor selected from the group consisting of $(Ba,Ca,Sr)_2MgAl_{16}O_{27}:Eu^{2+},Mn^{2+}$, $(Ba,Ca,Sr)MgAl_{10}O_{17}:Eu^{2+}$, Mn^{2+}, and $(Ba,Ca,Sr)Mg_3Al_{14}O_{25}:Eu^{2+}$, Mn^{2+} (hereinafter called "BaMn"). By mixing appropriate proportions of these phosphors, composites of emission spectra may be created that provide a wide range of colors in the visible spectrum. Especially, white light sources having different color temperatures ("CT") and CRIs may be created from a combination of near UV-to-blue LEDs and phosphor blends of the present invention. --

Please replace Paragraph 20 with the following rewritten paragraph:

a3

-- The present invention provides convenient phosphor blends that are excitable by electromagnetic radiation having wavelengths in the near UV-to-blue range (from about 315

nm to about 480 nm) to emit efficiently visible light in the wavelength range from about 490 nm to about 770 nm. The wavelength of the exciting radiation is preferably in the range from about 315 to about 420 nm, more preferably from about 350 nm to about ~~400~~ 410 nm. A suitable near UV/blue LED for use with a phosphor blend of the present invention is one having an InGaN active layer as disclosed in US Patent 5,777,350. Particularly useful are those LEDs having a GaN layer or having only a very small amount of In dopant in the GaN layer as these LEDs would emit radiation predominantly in the wavelength range less than about 400 nm. The phosphor blends of the present invention comprise at least two phosphors selected from the group consisting of (a) $Sr_2P_2O_7:Eu^{2+},Mn^{2+}$; (b) $(Ca,Sr,Ba)_5(PO_4)_3(F,Cl,OH):Eu^{2+},Mn^{2+}$; (c) $3.5MgO\cdot0.5MgF_2\cdot GeO_2:Mn^{4+}$; (d) $Sr_4Al_{14}O_{25}:Eu^{2+}$; (e) $(Sr,Ba,Ca)_5(PO_4)_3(Cl,OH):Eu^{2+}$; (f) an europium-activated aluminate phosphor selected from the group consisting of $(Ba,Ca,Sr)_2MgAl_{16}O_{27}:Eu^{2+}$, $(Ba,Ca,Sr)MgAl_{10}O_{17}:Eu^{2+}$, and $(Ba,Ca,Sr)Mg_3Al_{14}O_{25}:Eu^{2+}$; and (g) an europium and manganese co-activated aluminate phosphor selected from the group consisting of $(Ba,Ca,Sr)_2MgAl_{16}O_{27}:Eu^{2+},Mn^{2+}$, $(Ba,Ca,Sr)MgAl_{10}O_{17}:Eu^{2+}$, Mn^{2+}, and $(Ba,Ca,Sr)Mg_3Al_{14}O_{25}:Eu^{2+}$, Mn^{2+} (hereinafter called "BaMn"). In the formulas of the phosphors, the elements following the colons represent the activators or sensitizers and are present at low atomic proportions compared to the metals, such as less than about 20 percent. A group of elements separated by commas in a set of parentheses represent those elements that are interchangeable at the same lattice site. –

A3 Cont

Please replace Paragraph 27 with the following rewritten paragraph:

– In one embodiment of the present invention as shown in Figure 8, a light source 10 comprises a LED 100 emitting near UV/blue light in the range of about 315 nm to about 480 nm, preferably from about 350 nm to about 420 nm, more preferably from about 350 nm to about 400 nm, which is mounted in a cup 120 having a reflective surface 140 adjacent LED 100. Near UV/blue LEDs suitable for white light-emitting devices are GaN or In-doped GaN semiconductor-based LEDs such as those of U.S. Patent 5,777,350 mentioned above, which is incorporated herein by reference. Other near UV/blue LEDs also may be used, such as LEDs based on GaN semiconductor doped with various metals to provide a large band gap. Electrical leads 150 and 152 are provided to supply electrical power to the LED. A transparent casting 160 comprising an epoxy or a silicone 180 in which there are dispersed substantially uniformly particles 200 of a phosphor blend of the present invention. Then a molded seal 220 of a transparent material, such as an epoxy or a silicone, is formed around the assembly of LED and phosphor casting to provide a hermetic

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seal thereto. Alternatively, the phosphor blend mixed with a binder may be applied as a coating over the LED surface, and a transparent casting is formed over the entire LED/phosphor combination to provide a hermetic seal. Other transparent polymers or materials also may be used. The composition of the InGaN active layer of the LED and the quantity of the phosphor applied in the casting may be chosen such that a portion of the blue light emitted by the LED that is not absorbed by the phosphor and the broad-spectrum light emitted by the phosphor are combined to provide a white light source 10 of a desired color temperature and CRI. Alternatively, when the light emitted by the active layer of the LED is deficient in the blue light range, the quantity of a blue light emitting-phosphor , such as SECA or BAM, may be increased to provide adequate blend for the different color components. --

a4 Cont

Please replace the abstract with the following rewritten abstract:

-- Phosphor blends are disclosed that are capable of absorbing electromagnetic radiation having wavelengths in the range from about 315 nm to about 480 nm. These blends are mixtures of phosphors selected from the group consisting of $Sr_2P_2O_7:Eu^{2+},Mn^{2+}$, $(Ca,Sr,Ba)_5(PO_4)_3(F,Cl,OH):Eu^{2+},Mn^{2+}$, $3.5MgO \cdot 0.5MgF_2 \cdot GeO_2:Mn^{4+}$, $Sr_4Al_{14}O_{25}:Eu^{2+}$, $(Sr,Ba,Ca)_5(PO_4)_3(Cl,OH):Eu^{2+}$, $(Ba,Ca,Sr)_2MgAl_{16}O_{27}:Eu^{2+}$, and $(Ba,Ca,Sr)_2MgAl_{16}O_{27}:Eu^{2+},Mn^{2+}$. White light sources are obtained by applying a phosphor blend over at least one LED that is capable of emitting electromagnetic radiation in the above-noted wavelength range. --

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Please replace Paragraph 21 with the following rewritten paragraph:

-- By mixing appropriate proportions of these phosphors, a composite emission spectrum of the blend may be created that provides a desired CT and CRI with maximum luminosity (as defined by the lumens per watt of radiation input energy or "L/W_{rad}"). CT of a light source is the temperature of a blackbody radiator that has the same color. An incandescent light bulb has a color temperature of about 2000 K. Between 3000 K and 5000 K, a light source appears intensely white. Sunlight has a color temperature of about 5000 K. As the color temperature increases to between 8000 K and 10000 K, the light source appears blue. The CRI of a test light source is a rating that represents the degree of resultant color shift of a test object under that test light source in comparison with its color under a standard lamp of the same temperature. When the CRI value is 100, the test

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object appears to have the same color as when it is illuminated by the standard light source. Compositions of phosphor blends may be chosen to provide emission of white light having coordinates close to the black body locus of the CIE chromaticity diagram. In general lighting applications, it is desirable to provide light sources having a color temperature in the range of 4000 K to 6000 K and a CRI of greater than 80. Table 1, which is shown in its entirety in Figure 9, presents the result of a simulation of different blends of the phosphors. In this Table, the numerical value for each individual phosphor represents the proportion of the composite spectrum that the emission from the individual phosphor must contribute to result in the specified CT, CRI, luminosity, and distance from the black body locus; and it is not the weight fraction of the individual phosphor in the blend. The phosphor blend of this invention also is advantageously used with near-UV LEDs to produce less variation among the finished lamps. --

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